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10/826,001

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08/22/2007

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EXAMINER

VIJAYAKUMAR, KALLAMBELLA M

ART UNIT

PAPER NUMBER

1751

MAIL DATE

DELIVERY MODE

08/22/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/826,001

Applicant(s)

ROKHVARGER ET AL.

Examiner

Kallambella Vijayakumar

Art Unit

1751

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.

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### DETAILED ACTION

- Claims 1-11 and 13 are currently pending with the application. Claim-12 cancelled. Claim-13 newly added. Claims 1-2, 4-5 and 10-11 were amended.
- The amendment and arguments overcomes the objections and rejections under 35 USC 112 –II Paragraph and under 35 USC 102(b) cited in the last office action.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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1. Claims 1-3, 5-9, and 13 are rejected under 35 U.S.C. 103(a) as obvious over Topchiashvili et al (US 6,010,983) in view of Takahashi et al (WO 03/102091) and Holloway (US 5,529,981).

Topchiashvili et al teaches a superconductor wire composition <3D-lead> containing an aligned/oriented superconductor ceramic oxide of YBCO made by coating a substrate with an emulsion containing the ceramic YBCO particles, ultra-fine Ag-particles <nano particles that reads on dope particle> and liquid-silicone polymer <silicate precursor>, magnetically orienting the YBCO particles, polymerizing the silicone around 250C and heat treating the composition between 800-950C. Topchiashvili et al further teaches the presence of a uniform dispersion of Ba<sub>2</sub>SiO<sub>4</sub> (silicate glass phase) and components such as SiC, Si, C and BaCO<sub>3</sub> (impurity and phases due to superconductor break down) in the wire composition (Abstract, Fig 2-3; CI-1, Ln 41 to CI-2, Lon 33; CI-3, Ln 1 to CI-4, Ln 23; CI-5, Ex-1).

The prior art is silent about the nanostructure of the composition per the claim-1, and the c-axis orientation of the ceramic crystals.

Even though, Topchiashvili et al teach using an emulsion to coat the substrate, it does not explicitly disclose the particle size of the ceramic oxide. The presence of nano-size particle distribution in the emulsion of Topchiashvili et al would have been obvious in view of Takahashi et al (US 2005/0277543; Para 0039-0040, Table-IV used as English Translation of WO 03/102091) that discloses a coating emulsion containing ceramic oxide nano-particles (5-50 nm photo-catalytic oxide and 5-100 nm silica) dispersed in a hydrophobic resin (8-300 nm) in the analogous art of oxide coating composition, because the particles of denser superconducting ceramic oxide in emulsion should obviously be finer than less dense oxides of Si and Ti in the dispersions for it to be a stable coating composition.

The prior art wire composition and its method of making the wire including components processed and the process parameters, and utility of the wire are similar to that taught by the applicants (Specification, Page-13, Para-2-4; Pg-14, Ln 17-24, Pg-15, Para-2, 4) whereby the instant claimed nanophase, nano-size ceramic superconductor grains, nano-thick silicate glass and nano-distribution of impurities and dopants within nanophasic grain boundaries and the caging and framing of components

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forming nanocells will be obvious in the prior art composition because similar compositions are expected to possess similar properties and characteristics.

Further it would be obvious to a person of ordinary skilled in the art to orient the superconductor oxide crystals in a C-axis to benefit from improved current density characteristics with a reasonable expectation of success, because such an orientation is well known in the art at the time of the disclosure of the invention by the applicants in view of Holloway that clearly teaches attaining C-axis orientation by magnetic alignment of YBCO particles with improved current density (US 5,529,981, Abstract, CI-10, Ln 37-65), and it is the most preferred orientation for the superconducting oxide particles in superconducting wires/tapes.

With regard to claims 2 and 9, the prior art teaches, a composition containing 92.5 wt% YBCO, 5 wt% silicate elastomer and 2.5 wt% silver ultrafine powder (CI-5, Ex-1), wherein the composition, components used in making the wire and its processing conditions, and its utility are similar to that by the applicants, and similar compositions are expected to possess similar properties and characteristics.

With regard claims 3, 7, 8 and 10-11, the prior art teaches a wire whose composition and structure are similar to that by the applicant's and similar compositions are expected to possess similar properties and characteristics.

With regard to claim-6, the prior art teaches a wire.

With regard to the method in claim-13, the prior art teaches adhesive coating of the composition over the substrate, polymerizing the silicone around 250C and heat treating the composition between 800-950C, wherein the composition, components used in making the wire and its processing conditions, and its utility are similar to that claimed by the applicants, and the examiner asserts that the prior art structure and composition will similar to that produced by the instant claimed method.

2. Claims 4 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Topchiashvili et al (US 6,010,983) in view of Takahashi et al (WO 03/102091) and Holloway (US 5,529,981) further in view of Dorris et al (5,866,515).

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The disclosure on the composition, structure and method of making a superconducting wire/coil by Topchiashvili et al as set forth in rejection-1 under 35 USC103 (a) are herein incorporated.

The prior art teaches making conveyor production of wires any length including 1-10 km, but is silent about the thickness of the wire per the claims or the thickness of the coating, although it teaches adhesive coating the composition over silver/metal filament.

In the analogous art, Dorris et al teach making coated superconductor wires by coating a BSCCO/YBCO superconductor composition with a thickness of 19 micron over a nichrome wire with a diameter of 100 micron or a silver wire with a diameter of 125 micron (Cl-5, Ln 13-26; Cl-6, Ln 57-67; Cl-6, Ln 29-32).

It would be obvious to a person of ordinary skilled in the art to combine the prior art teachings to substitute the substrate in Topchiashvili with either a silver wire having a diameter of 125 micron or a nichrome wire with a diameter of 100 micron of Dorris as a functional equivalent, and optimize the coating thickness as a choice of design of coating operation with reasonable expectation of success, because Topchiashvili teaches using a metal substrate including silver, and the combined prior art teaching is suggestive of the claimed composition.

#### ***Response to Arguments***

Applicant's arguments filed 05/29/2007 have been fully considered but they are not persuasive. With regard to the argument that none of the references teaches the new features of the claimed invention (Res, Pg-9, Para-1), the prior art components used in making the wire and its processing conditions, its composition and its utility are similar to that claimed by the applicants, and the claimed structures should be present in the prior art structure, and thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. In re Best, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). >In In re Crish, 393 F.3d 1253, 1258, 73 USPQ2d 1364, 1368 (Fed. Cir. 2004).

For the reasons set forth above, applicant's fail to patentably distinguish their structure over the prior art.

#### ***Conclusion***

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Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kallambella Vijayakumar whose telephone number is 571-272-1324. The examiner can normally be reached on 8.30-6.00 Mon-Thu, 8.30-5.00 Alt Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas McGinty can be reached on 571-272-1029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KMV/  
Aug 15, 2007.

  
DOUGLAS MCGINTY  
SUPERVISORY PATENT EXAMINER  
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